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Electronic Business®

FOR MANAGEMENT IN ELECTRONICS, COMPUTER, AND SYSTEMS COMPANIES

FEBRUARY 18, 1991

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The 1991 Factory Automation Award

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Connector makers fight price erosion

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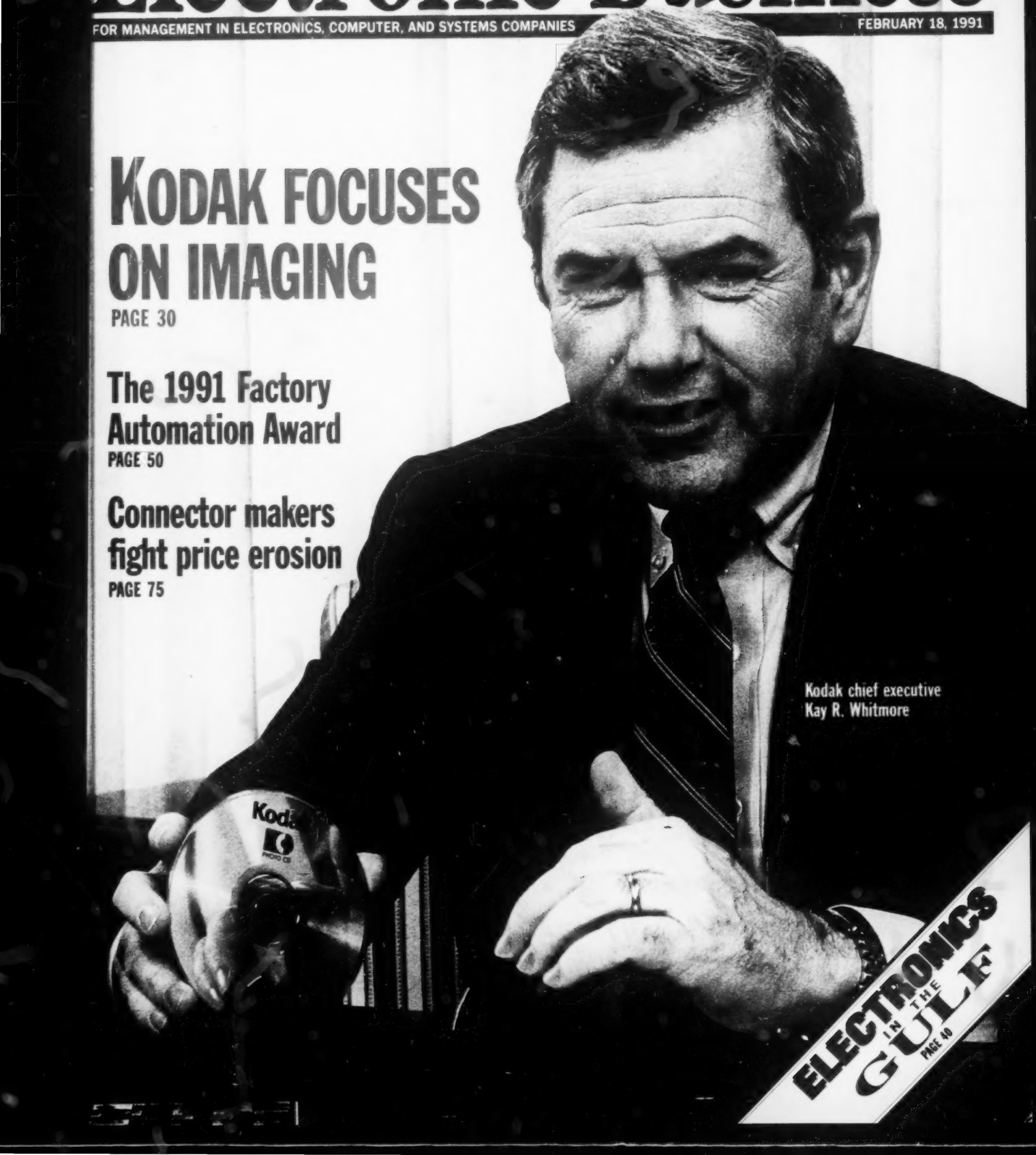

Kodak chief executive Kay R. Whitmore

ELECTRONICS IN THE GULF

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Electronic Business

FOR MANAGEMENT IN ELECTRONICS, COMPUTER, AND SYSTEMS COMPANIES — WORLDWIDE

VOL. 17, NO. 4

FEBRUARY 18, 1991

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Cover: Phil Matt

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Eastman Kodak Co. chairman, president, and CEO Kay R. Whitmore plans to make the company the hands-down leader in the new electronic-imaging market. But Kodak will need more than name recognition to succeed. It also must set the pace in establishing new industry standards, then prove that a big 110-year-old company still knows how to move quickly and decisively

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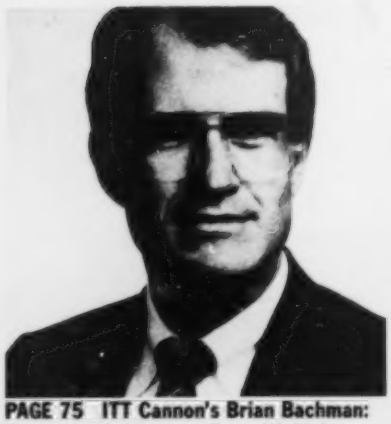
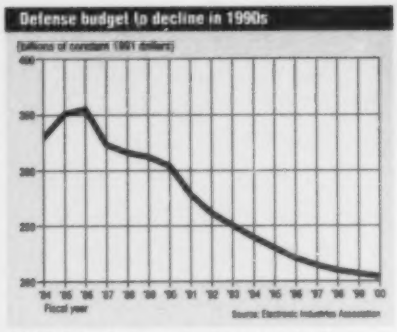


PAGE 75 ITT Cannon's Brian Bachman: Connector buyers can live with higher prices as the cost of supplier innovation



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Kodak hopes to create a world in its own image

Picture this: The grandfather of modern photography is going digital, going electronic. Forget those boxes of color slides. A compact disk will hold all your photographic images; you can call them up on your PC or workstation, crop them, size them, and print them out.

That's how Eastman Kodak Co. plans to revolutionize photography. Kodak's future vision extends further, focusing on its role as standard bearer for a range of desktop-imaging hardware and software technology, reports senior editor Rick Whiting in our cover story.

Senior editor Rick Whiting: a glimpse of Kodak's future

Kodak dubs its revolution-in-the-wings a case of "silver meeting silicon." Analysts say it is also a strategy for survival: meeting the competitive challenge of electronic imaging on the one hand and cutting dependence on a slowing market for standard photographic products on the other. But can a hierarchical 110-year-old company become a fast, flexible, high-tech player? We won't wait long to find out; the first photo CD products are just months away.

The Kodak story speaks to the need for executives to anticipate, manage, and implement the technology of the 1990s. Ironically, most of us had hoped that some of the industry's most effective technology would never have to be implemented at all. But in the early evening hours of January 16, millions of TV viewers, gripped by an odd blend of dread and fascination, became the first Americans to watch the nation go to war right before their eyes.

It soon became obvious that this would be unlike any other war in history. Less than a week after the first Allied sorties, a team of ELECTRONIC BUSINESS writers—senior editor Rick Whiting, associate editor Peter Burrows, and assistant editor Barbara Jorgensen—literally dropped everything to pull together our special report on "Electronics in the Gulf."

The early verdict, according to one defense expert, is that U.S. electronics technology has performed with "startling" success—especially the Patriot antimissile missile, produced by Raytheon Corp., Martin Marietta Corp., and several subcontractors. That, reports Whiting, poses another irony: The Patriot was nearly scrapped during the 1970s because of its poor performance and cost overruns.

Will the successes of these weapons spark another worldwide arms race? Probably not, although experts predict that the events of the past month or so could slow the deterioration in defense spending. In any event, there is little doubt that the proven reliability of "smart weapons" has changed the nature of warfare forever.

JOHN PARKER & GARRETT DeYOUNG

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BPA ABP

signal pickup devices from the outside. It also uses a Standard Machine Interface production automation line wherein wafers or chips are moved about in airtight, line-dockable containers to prevent contamination.

Cypress, according to Rodgers, will re-rig the plant to build 64K SRAMs it had been making at its Round Rock, Tex., facility. This is largely because Cypress "can't fill demand" for 64K and 256K SRAMs, and Round Rock didn't afford the necessary capacity to meet demand. Round Rock is slated to become a Sparc chip plant when the conversion takes place sometime early this year. The facility will be run as a subsidiary, Cypress Minnesota Inc.

Rodgers says Cypress would discontinue the military application chip production VDT started, calling prices in that business "astronomical." The CMOS logic chip business is also out the door, but a single-chip VME production line with 14 employees will stay.

DAVID WEBB in San Jose

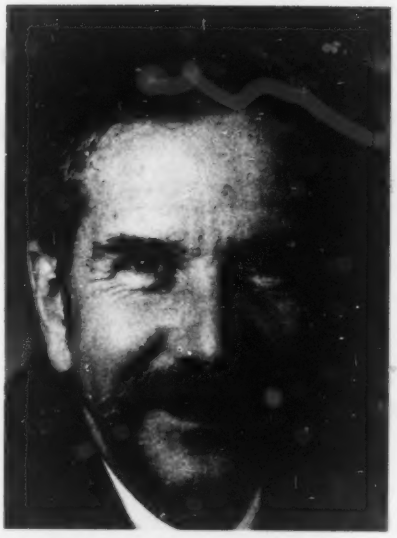
EXECUTIVES

Chip industry legend opts for retirement

AFTER MORE than 25 years at the helm of National Semiconductor Corp., Charles E. Sporck, 63, says he will leave Santa Clara, Calif.-based National for retirement.

Sporck handed over control of National to Gilbert Amelio, most recently president of Rockwell Communication Systems. Amelio started work at National early this month and will share an office with Sporck until the retiring CEO leaves the company in May. With Amelio gone, Rockwell Communications Systems will be headed by 51-year-old executive vice president and chief operating officer Kent M. Black.

An elder statesman of the industry, Sporck was one of the first chief executives to stress the importance of manufacturing in the semiconductor business. Some say he is still more comfortable on the factory floor than in the boardroom. Sporck's belief in manufacturing led him to become the driving force behind the formation of Sematech, the chip-making consortium. With his retirement from



Charles Sporck prepares for life after National Semiconductor

National, Sporck will also step down as chairman of Sematech, and Motorola chairman Robert Galvin, 67, will replace him.

Sporck's decision to retire comes at a time when National is emerging from several years of heavy losses and layoffs. Sporck took direct control of the company almost two years ago in an attempt to turn National around, but his efforts were only partly successful. In its most recent quarter, the company posted its first operating profit in some time, but analysts say it is still short of full recovery.

Amelio, 47, will have his hands full making sure National makes a complete recovery, say analysts. In particular, they say, the company must shift its emphasis from commodity products toward chips with higher prices and added value. Although some feel National desperately needs the infusion of new management styles, others worry that Sporck might be leaving too soon.

But Amelio, who has a doctorate in physics and holds 16 patents, downplayed National's problems in several interviews and stressed that he was not going to rush the company into major changes.

Sporck, meanwhile, says he has no plans to get back into the chip business. Instead, he says, he will spend time with his family and savor the novelty of being without a job for the first time since he left grade school.

VALERIE RICE in San Jose

TAIWAN PCs

Service a major worry for Taiwan's PC dealers

IN THE CLONE kingdom of Taiwan, local dealerships provide a major outlet for U.S. manufacturers of PCs. But what are those Taiwanese dealers looking for from foreign vendors?

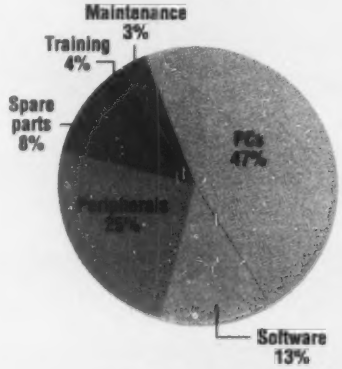
Sufficient technical support, reliable quality, and appropriate profit margins are the major concerns for the Taiwanese dealers when they choose PC suppliers, according to a recent survey conducted by the Taipei-based Market Intelligence Center (MIC) at the Institute for Information Industry, a government-sponsored market research institution. The survey covers 224 PC dealers scattered all over the island country and selling a total of 487,000 PC units in 1989.

Of all the dealers, 66% say the technical support and service provided by the PC vendors is the most important factor to their business.

Among the foreign vendors, IBM has received a score of 67% approval in its technical support, only trailing NEC's 78%.

But the U.S. vendors seem to have priced their products too high in Taiwan; 83% of the respondents to the MIC survey judged products made by IBM unsatisfactory in terms of price, 75% were unhappy with Apple Computer Inc.'s prices, and 63% were dissatisfied with prices from Wang

What Taiwan's PC dealers sell



Source: Market Intelligence Center, Institute for Information Industry (Taiwan)

CAPITAL SPENDING

Slowing sales put squeeze on capital-spending plans

UNCERTAINTY and caution combined during the third quarter of 1990 to put the squeeze on electronics companies' capital-investment plans. Results from the third ELECTRONIC BUSINESS capital-spending poll show, more than ever, electronics chief financial officers are planning to cut capital spending.

Of the 61 CFOs surveyed during the last quarter of 1990, only 25% admitted to having spent less on new equipment and factories during the year than in the previous year. Yet questioning about their quarterly spending habits and plans clearly showed that top electronics manufacturers slashed near-term capital budgets: More than half of all CFOs indicated that plant and equipment spending in the third quarter of 1990 had fallen from second-quarter levels, and 47% said spending had dropped from year-ago levels; only 18% said capital investment rose from the second to third quarters of 1990.

The forecast for capital spending has become progressively worse as well. When ELECTRONIC BUSINESS first asked electronics companies about their investment plans last spring, an encouraging 38% of the respondents were planning to step up investment in the upcoming quarter. Later that summer, 32% of CFOs surveyed were still optimistic about their near-term spending plans. According to the latest survey, however, only 21% actually approved increases in capital budgets for the next quarter; the rest expected capital spending to fall during the next three months (45%) or to stay the same (34%).

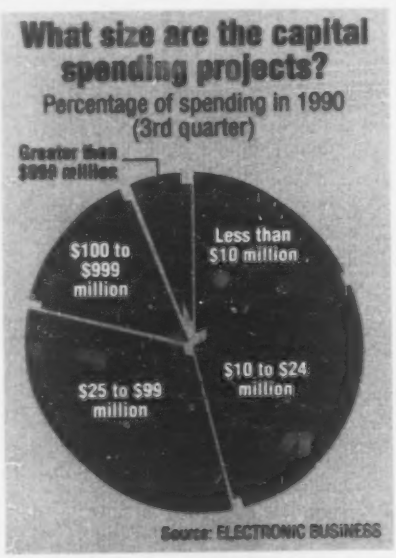
The culprit in the electronics industry's capital budget stand-off? The economy. Contrary to the popular perception about the sanctity of the current capital budget, over half of those surveyed said the biggest constraint on their spending plans is the expectation that their company's sales will not increase significantly in the near future.

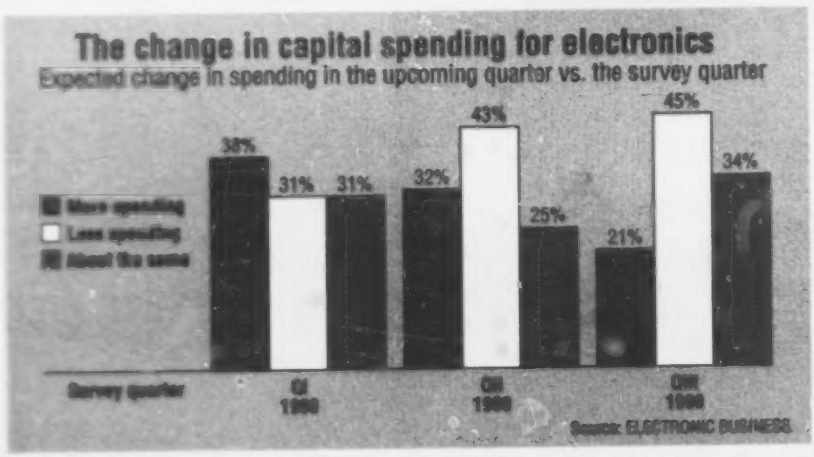
Last spring 19% of those surveyed spent over $1 million on a big-ticket piece of equipment during the previous quarter; in the latest study, only 13% reported spending more than $1 million on a single investment. This may or may not be a significant trend, however, since survey respondents who qualify as large companies (which we define as those with 1989 sales of more than $100 million) fell slightly when compared with the first survey.

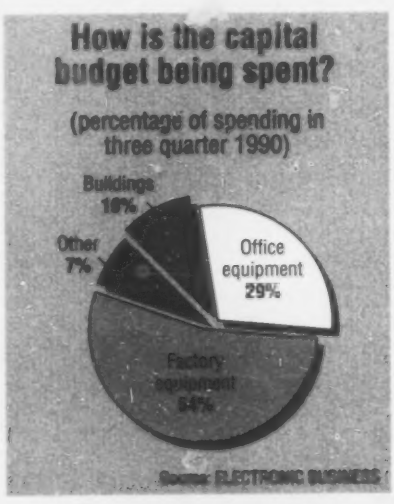
Total investment by all U.S. companies in computers and information processing equipment slowed in the middle of the past year. According to the Department of Commerce, overall investment grew only 1.4% in the second quarter of 1990 and 2.2% in the third quarter (both compared with year-ago figures). Those gains, which are not adjusted for inflation, are the slowest increases since the 1986 electronics industry recession. Overall investment in computers alone fell 3.7% from a year ago.

With all industries cutting back on their purchases of technology equipment, the sales outlook for electronics companies making computers and high-tech capital equipment looks weak. The downward spiral of a recession has begun. The nagging questions are: How low will the figures go before hitting bottom, and how long will the recession batter the U.S. electronics industry's capital-investment plans?

ELIZABETH BAATZ and XIONG XIAOGE


What size are the capital spending projects?
Percentage of spending in 1990 (3rd quarter)
Greater than $999 million
$100 to $999 million
Less than $10 million
$10 to $24 million
$25 to $99 million
Source: ELECTRONIC BUSINESS





A big country with big plans —and big problems

India's electronics boom has started with TV manufacturing, but shortages of components and cash could stall it

BY JOHN RIBEIRO

Roughly four times larger than it was five years ago, India's electronics industry has been booming. But in order to meet ambitious government targets set for 1995, it will have to keep booming.

According to figures from the Government of India Department of Electronics (DOE), electronics enjoyed compounded growth of more than 35% during the country's seventh Five-Year Plan for economic development, from 1985 to 1990, a period that saw output increase from $1.2 billion to $5.1 billion. The figures have not been adjusted to reflect inflation and the depreciating rupee over the life of the plan.

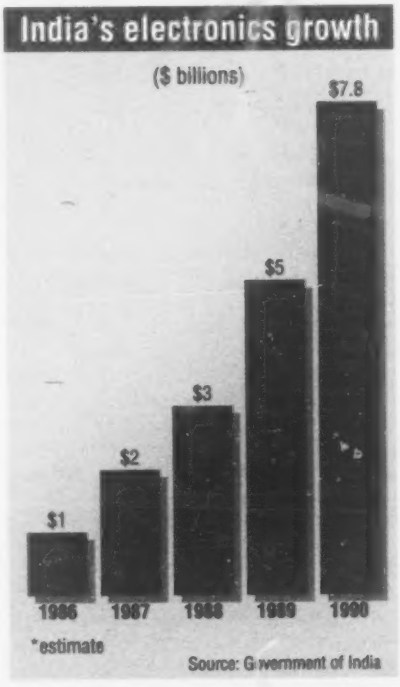
The heart of India's electronics industry, which accounts for nearly 20% of the country's total electronics output, is in leafy Bangalore—dubbed India's Silicon Valley—in south India's Karnataka state. Though not as stretched and strained as other industrial centers, Bangalore has a temperamental communications system and mercurial power supply, pressuring some companies to establish in nearby Mysore or elsewhere.

But bustling as Karnataka's electronics industry is, the state has a declining share of India's overall electronics, a situation that reflects more the hyperactivity in other parts of the country rather than sluggishness in the Bangalore area.

The boom has been fueled by low-end consumer products, mostly televisions. It started with liberalized economic policies introduced by the first Rajiv Gandhi government, which in 1984 implemented the Computer Policy and the Telecom Policy. A new strategy, called Integrated Policy Measures in Electronics, also helped when it went into force the following year.

The initiatives eased restrictions on both technology imports and manufacturing licensing, while removing the licensing of the components industry, thereby opening the electronics arena to private companies that have up to 40% foreign equity.

The government's attitude toward the private sector in recent years is reflected across India's industrial landscape, as Bangalore's *Economic Times* noted in its report on the public sector's fast-declining share of the electronics industry. In one report over year ago, the newspaper pointed out that in the early 1970s, government-owned companies controlled 90% of production in Karnataka state but today controls just over half. "By 2000," the *Economic Times* said, "[private companies] will account for 90% of the total electronics production."



No turning back

With winds of change blowing across the country, the private sector started to make telephones and switching exchanges, once the preserve of the public sector. Eventually, the Telecom Policy was amended to allow the private sector to manufacture switching equipment of up to 2,000 lines capacity and multichannel radio relay systems of up to 12 channels.

The National Front government of Prime Minister V. P. Singh—a fragile coalition—had been expected to liberalize policy further, before being replaced by a new coalition headed by Chandra Shekar.

The general consensus seems to be that no matter which party or coalition of parties governs the country, there is no turning back to the centralized economic stagnation of the past. Nevertheless, government and company officials alike were prepared to talk about developments only off the record.

The consumer sector, specifically television manufacturing, was the quickest to respond to the changes because the conditions for growth had already been laid in 1982 when the government television network, Doordarshan, introduced color and expanded services.

But other sectors also enjoyed significant growth during the seventh Five-Year Plan. Computer systems output, for example, grew from $52.8 million in 1984 to $416.7 million in 1989. In that time, the sector widened activity beyond manufacturing

IBM-compatible personal computers to making minis, super-mini computers, workstations, and mainframes—although the more sophisticated the technology, the higher the import bill for foreign parts.

Liberalization brought in multinationals like Digital Equipment Corp., Hewlett-Packard Co., and Groupe Bull S.A., each setting up joint ventures. Deregulation also lured new domestic players into telecommunications equipment manufacturing, some of them working with offshore partners under a centralized technology government purchase scheme. Not surprisingly, India's own big computer companies, such as HCL ltd. and Wipro Information Technology Ltd., also managed to flourish during the Rajiv Gandhi era.

In 1984 the government set up the Center for Development of Telematics (C-DOT) in order to develop electronic switching systems. C-DOT's efforts generated important by-products, among them a 128-port PABX and a 128-port rural automatic exchange. With further liberalization, the technology for both switches was licensed to Indian Telephone Industries (ITI), which created a large manufacturing base for switching systems in the bargain.

C-DOT has reportedly slipped behind current targets to develop a large exchange, although the Department of Communications at Bangalore felt sufficiently confident to commission it to develop a 4,000-port configuration of its C-DOT switch.

ITI's electronic switching systems factory at Mankapur in North India's Uttar Pradesh state accelerated production of E-10B exchanges under technology-transfer agreements with CIT-Alcatel. Production of the exchanges increased from 175,000 lines in 1987 to a target full-capacity production of 500,000 lines this year.

But delays in large-exchange development at C-DOT may precipitate a shortage of large exchanges, a potential problem the private sector hopes to circumvent through joint-venture manufacturing arrangements with multinationals.

Consumer electronics accounts for the largest share of production. In 1989 the sector had an estimated production of $1.8 billion, more than 33% of all production. That said, computers posted the strongest growth during the period—51%—mainly because volume stood at a comparatively low $52.8 million at the beginning of the seventh Five-Year Plan.

The consumer sector followed, posting 38% compounded growth over that period. Television production was the driver: In 1988, for example, production of color and black-and-white televisions accounted for $1 billion out of the consumer sector's $1.5 billion total.

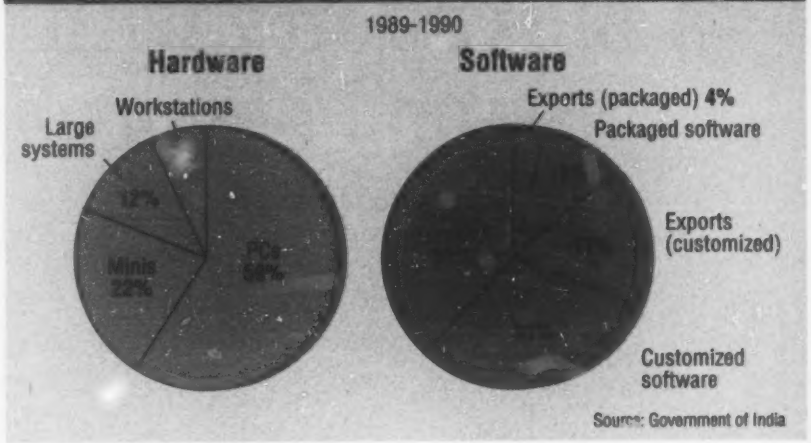
No matter which party governs, there is no turning back to centralized stagnation of the past

Six million televisions, most of them black-and-white, were produced in 1988, compared with only 1.45 million in 1984. But indications are that demand has reached a plateau.

Led by Bangalore's BLP Group and others, video cassette recorder production has started. The DOE estimates that the Indian video industry will produce up to two million units by 1995, accounting for a turnover of $777.8 million.

The consumer range is expected to grow beyond its current focus on televisions, helping to hold the sector's commanding share of activity over the course of the eighth Five-Year Plan, which runs from 1994 to 1995.

India's computer industry revenue breakdown



Source: Government of India

Components are the sore point. In 1987, for instance, roughly 52% of components were imported. But with domestically made color tubes and other components becoming available, that figure is expected to drop to 40%.

The components industry grew 38% in the past five years, output reaching $888.9 million this year, thanks mainly to consumer activity and to television-parts manufacturing in particular.

Component crunch

Nonconsumer electronics haven't fared nearly as well on the components front. A report from the Bureau of Industrial Costs and Prices of the Ministry of Industry estimates that imported components can run as high as 83% of material costs (excluding duties) of personal computers. That estimate also tallies in the import content in domestically made electronic components.

The DOE came to the same dismal conclusion after commissioning its own Study Team on Electronic Components for the eighth Five-Year Plan. The agency found that electronics content accounted for 31% of products, and 85% of the electronics content was imported.

The group found that the components industry was much too fragmented, a situation that worked against achieving viable economies of scale: Domestically produced components that can cost twice as much as those that are available from overseas manufacturers in the world market.

Its study also found that local manufacturers can't keep in step with ever-changing technology and depressingly short product life cycles. Instead of redesigning products around locally available components, India's downstream manufacturers import designs and make products to their specifications—using short runs of imported components local producers can't hope to make and earn money on.

There are exceptions to the rule in both consumer and nonconsumer areas. For instance, some component manufacturers have stepped up capacity in black-and-white television tubes, electrolytic capacitors, and ferrites.

Indeed, excess capacity on some production lines has stimulated exports. India is currently exporting these and other products.

Inevitably, imbalances have occurred. India's commitment to supply Soviet manufacturers with one million color tubes, for example, has 'eft some television manufacturers high and dry, forcing them to source offshore.

By 1995, according to DOE estimates, 25% of the demand for components will continue to be met by imports. A critical area will continue to be large-scale and very-large-scale integrated devices. To reduce dependence on imported chips, parliament recently approved a $101.8 million package to refurbish the publicly owned Semiconductor Complex Limited (SCL) to be implemented by 1992.

Industry insiders say SCL is planning to set up a 6-inch wafer foundry, using 1-micron bipolar complementary metal-oxide semiconductor (BiCMOS) technology, with foreign partners. One may be Austria's Mikro Systems A.G., which provided SCL production capacity after its fab was gutted by fire last year.

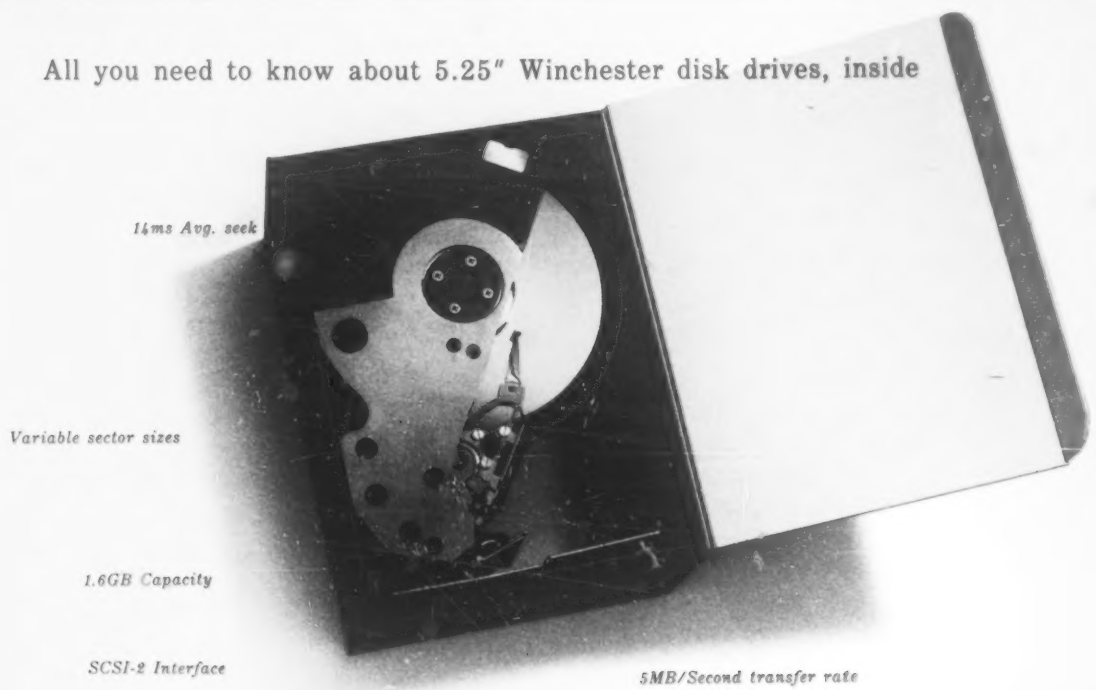
Some industry watchers argue that even the new, improved SCL won't make enough devices to meet local demand—even with business swelling to a projected $27.8 million annually.

ITI, which runs a 4-inch wafer foundry making 3-micron CMOS gate arrays and standard application-specific integrated circuits, got the government's go-ahead to set up a 5-inch wafer foundry using 1.5-micron CMOS technology, primarily to manufacture ASICs.

San Jose, Calif.-based VLSI Technology Inc. is a technical partner in the venture that is expected to create a $27.8 million business.

Bangalore's Bharat Heavy Electronics Limited and subsidiary Bharat Electronics have also made plans for setting up their own foundries. Besides these public-sector companies, one private company, Usha Rectifiers Ltd., appears ready to set up a foundry for 3-micron, 4-inch wafers.

The DOE is aiming for 27% overall growth for electronics over the course of the eighth Five-Year Plan, hoping for a volume of $16.7 billion by 1995. Highest growth is expected in software exports, which are projected to swell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Indian information technology revenue

48.40%	Hardware	292.42	415.94	42.24%
6.29%	Software	28.70	54.18	88.78%
9.26%	Peripherals	53.91	79.69	47.82%
1.34%	Memory Media	5.23	11.52	120.26%
4.37%	Training	14.93	37.59	151.77%
1.31%	Agency operations	10.18	11.30	11.00%
14.63%	Exports	66.91	125.98	88.28%
9.19%	Maintenance	56.75	80.00	40.98%
5.11%	Other	65.89	44.00	-33.21%

Source: Government of India

60% to $11.1 million by 1995, the last year of the plan. Consumer electronics will continue to dominate, say government officials who predict volume reaching $4.7 billion in 1994.

Aiming high

To achieve these targets, the government says $3.3 billion has to be invested, half of that in the components sector. The downside includes running up a sizable import bill—from the current $1.1 billion for 1989 to $3.5 billion by 1994.

The eighth Five-Year Plan could stall without a concerted effort to boost exports to the limit to earn the cash to pay for imports. And since the introduction of this year's new industrial policy, pressures have mounted to decrease import allowance for plant and machinery.

The DOE says that by 1995, the net foreign exchange requirement would only be $27.8 million if exports raised the targeted $3.5 billion it is hoping for. How ambitious is the plan? It requires more than an eightfold increase in electronics exports in the next five years.

Exports—including those from domestic software houses, export-processing zones, and 100% export-oriented companies—were only $416.7 million in 1989. To achieve the projected leap, the DOE has selected several product groups to fuel the drive—among them, televisions, telecommunications exchange equipment, dish and microwave antennas, personal computers and peripherals, as well as software and software consulting services.

In the components area, where domestic needs are too piecemeal now to develop a viable supply stream, the government is trying to encourage an export drive to achieve economies of scale at home.

Are DOE planners dreaming merely in black-and-white or in full-blown technicolor? An awful lot of complex elements will have to fall neatly into place for India's aims to be realized. Only time, about five years of it, will tell. □

and out.

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NEC

In search of the high-fashion mouse

Vendors are betting that a new set of clothes will make the dowdy commodity devices more appealing to a wider range of buyers

BY DAVE WEBB

If Pierluigi Zappacosta has his way, every microcomputer system user would end up buying not just one mouse or trackball from Logitech, but two.

First, he says, he would sell one through a system OEM vendor, which tends to buy low-cost, no-frills mice to package with its systems. Then when the computer makes it to the user's desk, Zappacosta would be there to market a second, more "fashionable" mouse or trackball that would please the user in much the same manner as a new style of jeans or sunglasses.

"We want people to look at the mouse sitting next to their computer and say, 'I like it. It's cool,' " says the president and CEO of Swiss-owned Logitech Inc. in Fremont, Calif., one of the handful of independent, non-keyboard input device suppliers.

Not everyone may agree, but Zappacosta insists that users can actually become attached to products they use on a daily basis. "Look at what Swatch did for the watch," he enthuses. "It was a commodity product, yet those guys figured that people wanted something different, something that would make them stand out as individuals. They have been tremendously successful. We are hoping we can do the same."

Hoping implies a bit of apprehension on the part of Zappacosta and his staff, but his ideas about marketing input devices such as mice, which quickly became commodity items after Apple Computer Inc. popularized them for use in its Macintosh, may be what it takes for the independents such as Logitech to survive in this low-margin business. Little data is available about the non-keyboard input device market, but among mice, trackballs, stylus pointers, and so-called isopoint bars, mice shipments make up the dominant share of the non-keyboard microcomputer input device market. And because there is little to do in order to improve upon the technology of a mouse, vendors have started to recognize that the mouse can be upgraded in other ways. As in any commodity market, differentiation is critical; companies such as Logitech are embracing the idea that making a mouse fashionable can attract buyers to what is a plain-vanilla product.

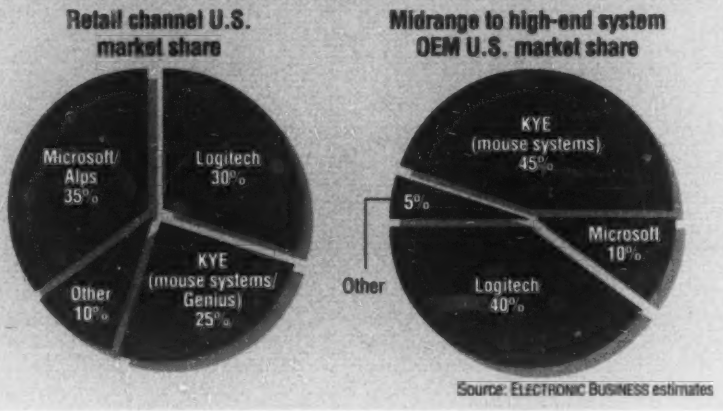
Logitech CEO Pierluigi Zappacosta wants to add some pizzazz to the plain-vanilla mouse

Not all vendors agree with Logitech's approach. "We know damn well we are working in a commodity market," says John Murphy, vice president of sales and marketing for Mouse Systems Inc. in Fremont. "And it is a bit of a fashion market, that's true. But we take the opposite viewpoint [from Logitech]. We want to sell just one mouse to each person and give them a product they won't want or need to switch from."

As a result, the three largest U.S. market suppliers—Mouse Systems, Logitech, and San Jose-based Alps Electric, which supplies mice to Microsoft Corp.—are focusing on ergonomics, or making the devices easier to use. Both Logitech and Mouse Systems are gearing up marketing campaigns around right- and left-handed versions of products designed to be held as naturally as possible while in use. And both are delivering different sizes to accommodate small and large hands; Zappacosta suggests his company may even come

Sharing the non-keyboard market

Worldwide pointing devices shipped in 1990 = $10 million
Worldwide units expected to ship this year = $20 million



Source: ELECTRONIC BUSINESS estimates

up with a third, medium-size mouse to fill out its ergonomic product set.

"I really don't believe it is crazy for us to believe the mouse can be some sort of fashion statement," Zappacosta says. "Making it feel right is a part of addressing this issue of personalizing the computer to the individual."

The mouse segment of the input device market can be divided into three segments: the high-end microsystem OEM market, the low-end microsystem OEM market, and the retail/distribution market. Until recently (and especially before the availability of Microsoft's Windows version 3.0), mice were largely confined to use in Macintosh environments. As some software programs under early versions of Windows became available, mice began to see use in IBM PCs and compatibles, but it wasn't until Windows 3.0, which brought many Mac-like ease-of-use features to the IBM world, that mice became an integral part of a system.

Mouse Systems, which was purchased by the Taiwanese electronics manufacturer KYE International late last year, appears to have a clear market share lead in the high-end desktop personal computer and workstation market. Its customer list includes Sun Microsystems Inc., Silicon Graphics, Concurrent Computer Corp., Siemens A.G., and Data General Corp. for its cordless, optical, and conventional mice. Mouse Systems claims its share of the low-end system and distribution-channel presence is about 30%, about even with Logitech and well behind Microsoft. A slew of other retail-channel vendors supplying mice and trackball devices includes KYE (with its Genius trademark products), Keytronics, IMSI, Kensington Microware Ltd., and Microspeed Inc.

Logitech is squarely anchored in the low-end desktop system OEM market, where Zappacosta says 60% of its business is targeted. Logitech's customer list includes Sun Microsystems Inc., Silicon Graphics Inc., AST Research Inc., and "just about all" of the major PC-clone vendors. The remaining 40% is largely retail distribution, where the company has charted an aggressive head-on marketing strategy to unseat Microsoft and its powerful Windows 3.0/mouse package marketing scheme.

The three largest U.S. market suppliers are focusing on ergonomics—making devices easier to use

Other pointing devices don't seem to have the appeal of mice. Nevertheless, everyone except Microsoft (which sells only mice) is marketing an alternative such as a trackball, stylus pen, or the isopoint bar, which Grid Systems Corp. integrated into one of its latest laptop computers. Touchscreen technology has yet to gain significant market interest.

Market to double?

Ironically, it is Windows 3.0 that is spurring demand across the board for pointing devices, with mice at the forefront. For Microsoft's competitors, it has been as much of a boon as it has been a competitive hurdle in the market, especially in the retail channel. "Mice sales are running rampant," claims Steve Ashe, director of sales and marketing at Computerland. "With sales of Windows and Windows 3.0, we have seen a significant increase in the number of mice we sell, and they are continuing to grow." Other retailers voice similar claims.

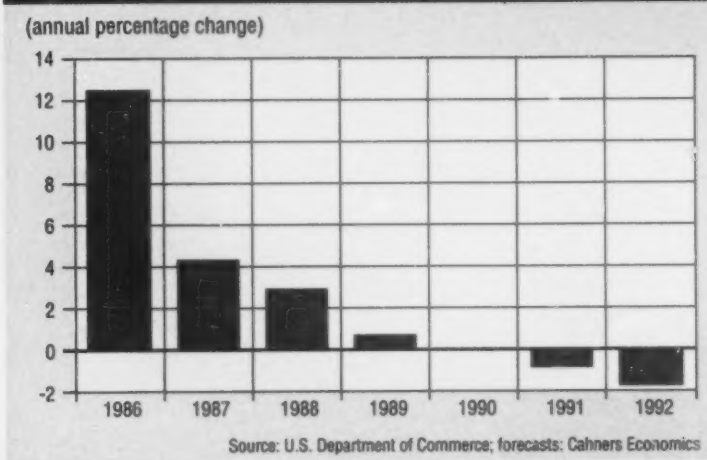
"With Windows [3.0] and the new graphical user interfaces, it is becoming okay to use a mouse in the PC world," says Mouse Systems' Murphy. "Two to three years ago you couldn't get DOS users to use a mouse, but that has changed in the last 18 months."

Logitech's Zappacosta says his company was on a 500,000-unit-per-month run rate in December and estimates that in calendar 1990 the company shipped 4 million of the 10 million mice shipped last year. He says the worldwide market will double to 20 million by the end of this year. If his strategy pays off, Logitech will get 50% of the market in 1991. "The main issue for us is whether we will be able to overtake Microsoft in the retail market," he says.

The main issue for Mouse Systems, meanwhile, will be to maintain a leading-edge technology stance above the competition, Murphy says. "People in the high-end workstation market are buying performance," he says. "They want compatibility with their software, accuracy [of the pointing device], and ergonomic designs. Ergonomics by itself can play a big difference in the market."

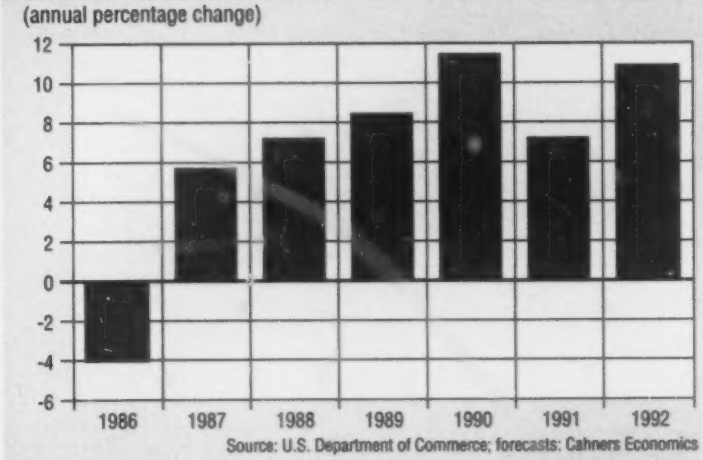
The company is focusing on new product designs such as its optical mouse, which operates on a grid pad with much more accuracy than a conventional ball-type mouse. Murphy claims than an optical mouse continues to read accurately over time while a conventional ball mouse can wear out and get sloppy, resulting in a 10% loss of accuracy over time. □

Defense communications equipment shipments



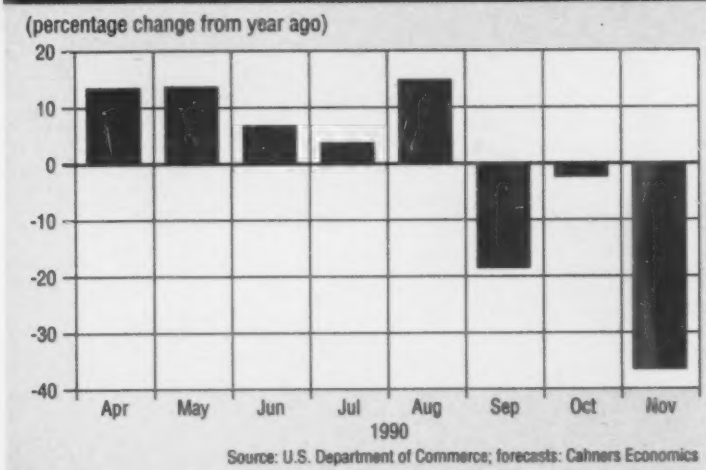
Source: U.S. Department of Commerce; forecasts: Cahners Economics

Commercial communication equipment shipments



Source: U.S. Department of Commerce; forecasts: Cahners Economics

Communication equipment new orders



Source: U.S. Department of Commerce; forecasts: Cahners Economics

Communications equipment orders down

Shipments of communications equipment grew an estimated 6.3% to $82.7 billion in 1990, a relatively healthy figure given the condition of some other electronics markets and the overall economy. But, if recent trends in new orders are any indication, the industry can expect rough sailing ahead.

The shrinking of orders for communications equipment below year-ago levels began in September of last year and was exacerbated by the plunge in business confidence.

The damage became apparent this past November when orders for communications equipment tumbled 18.6% from October and dove 36.8% from the total orders in November 1989. A drop in defense communications equipment orders contributed the most to the decline, although orders for commercial communications equipment also dropped about 4% from a year ago. The monthly trend in communications equipment orders has always been volatile, but the industry had never before experienced a single monthly decline of this magnitude. Despite the military needs created by the Middle East crisis, the end of the Cold War brought cuts in orders for military radar, sonar, and navigation equipment.

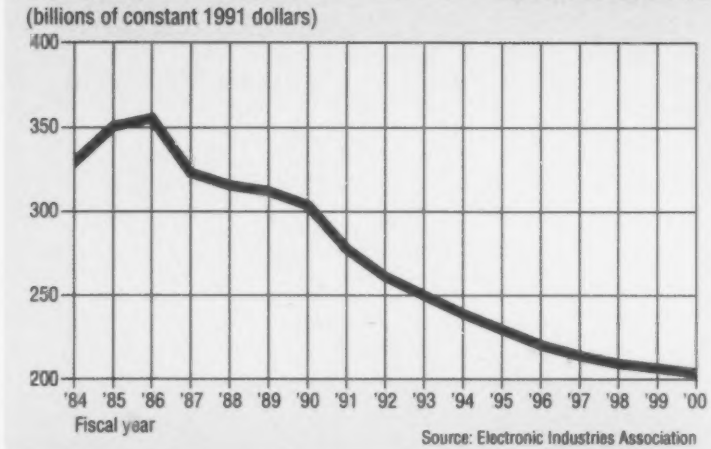
As a result of the weak demand from the military, growth of communications equipment shipments will be slower this year compared with 1990. Cahners Economics expects total shipments to advance 3.7% in 1991. This forecast assumes a decline in defense shipments and about 7% growth in commercial shipments as networking continues its spread across corporate America.

One reason the industry will skirt a serious contraction in 1991 stems from its relatively high backlogs of $61.2 billion—almost 8.8 times its level of monthly shipments. So, the industry has some fat to sustain itself should the current recession last longer than expected.

MADELINE FRANCHI

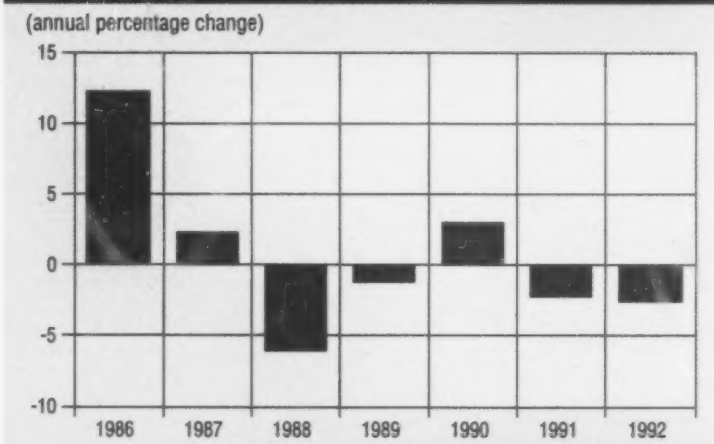
For more information on Cahners Economics' forecasting services, including seminars, newsletters, and database diskettes, contact Dan Buchan at (617) 630-2105; by fax at (617) 630-2100; or write Cahners Economics, Cahners Publishing Co., 275 Washington St., Newton, MA 02158

Defense budget to decline in 1990s



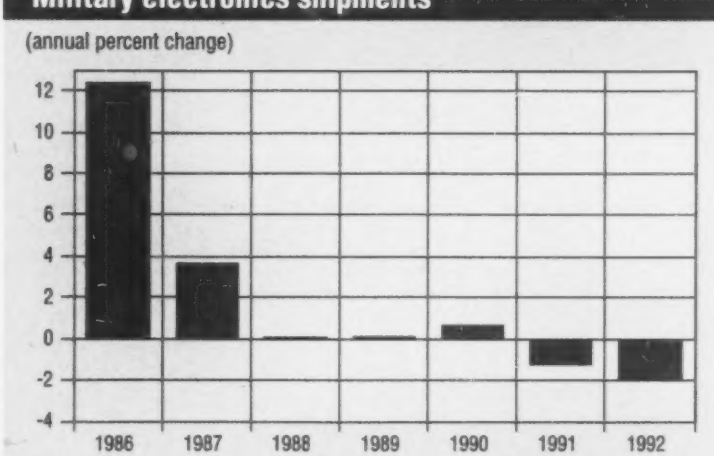
Source: Electronic Industries Association

Defense aircraft and parts shipments



Source: U.S. Department of Commerce; forecasts: Cahners Economics

Military electronics shipments



Source: U.S. Department of Commerce; forecasts: Cahners Economics

Defense faces lean years despite Gulf conflict

Defense contractors will have to battle through budget cuts and declining global demand in order to survive this decade, as the federal budget deficit and the shaky financial industry will remain the prevailing concerns in Washington.

According to the Electronic Industries Association's 10-year forecast for the defense industry, the U.S. defense budget will decline one-third, from $302.8 billion (in constant 1991 dollars) in fiscal year 1990, to $203.5 billion in fiscal year 2000. The Persian Gulf crisis will not halt these cuts but will temporarily slow down the decline.

One area benefiting from the Iraqi invasion will be the aerospace industry. A potentially large market for U.S. military aircraft will reopen, and according to the Department of Commerce's 1991 U.S. Industrial Outlook, sales to the Middle East are expected to increase this year. However, this will not offset the decrease in demand elsewhere. Cahners Economics forecasts defense aircraft and parts shipments to fall 2.3% in 1991, followed by a further decline of 2.6% in 1992.

The 1980's movement toward creating new systems is being abandoned in favor of upgrading existing equipment. This strategy will benefit the electronics industry by including a higher percentage of electronic parts in current systems. But, once again, the gains made through this means will not be sufficient to overcome budget cutbacks. The results for 1991 are expected to show military electronic shipments slipping 1.3%, while 1992 will see another 2% reduction.

The battle to survive in this industry will be fierce, and most companies have already laid down their plans. Success will come to those that can offer cost-effective upgrades and to those that diversify into new areas such as environmental sensor and cleanup systems and drug interdiction. All in all, expect lean years ahead for the defense industry with the electronics sector feeling the pinch as well.

JOHN FARRELL